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ABSTRACT

This learning module is intended to assist outpatient professional nurses in teaching patients to measure and administer their own insulin and to deal with diabetic emergencies when out of the hospital. The instructor's information (presented in an appendix) includes an overview of the topics covered in the patient module, general directions for presenting the module to diabetic patients, and page-by-page directions for completing blanks in the student module by supplying information pertaining to the patient's own type of insulin, dose regimen, physician, and special instructions. The student module includes information sheets with blanks allowing them to be customized to the individual patient's drug regimen. The following topics are covered on the patient information sheets: prerequisite computational skills, insulin and how it works, why insulin needs to be injected, insulin storage, procedures for measuring insulin and preparing the syringe, techniques for administering the injection, syringe disposal, travel hints, and diabetic emergencies. Three knowledge review exercises and a module posttest are also included. (MN)

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INSULIN: ALL YOU NEED TO KNOW BUT WERE AFRAID TO ASK

A PATIENT EDUCATION MODULE

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ABSTRACT

Since the initiation of Diagnostic Related Groups and other rigid insurance regulations, there has been an increased demand upon the Outpatient Professional Nurse to do more Diabetes education (i.e., to teach patients about insulin, insulin measurement and administration, and diabetic emergencies when the patient is out of the hospital).

This module is designed to provide all the information needed by a patient in order to survive safely while on insulin.

(1).

INFORMATION SHEET

I am requesting the following information from you before we begin the insulin treatment program. This information will allow me to keep in contact with you once we have finished your instruction. Please answer the following questions.

YOUR NAME_____

YOUR STREET ADDRESS_____

CITY, STATE AND ZIP_____

YOUR TELEPHONE NUMBER_(____)_____
(AREA CODE) (PHONE NUMBER)

(2).

PREREQUISITE SKILLS

In order to assess your ability to complete this booklet, I will ask you some basic questions. Your responses will give me a general idea about the skills you already possess in order to begin work.

Answer the following math questions to your best ability.

10 + 2 = ____	4 - 3 = ____
8 - 2 = ____	3 - 1 = ____
9 + 3 = ____	12 - 6 = ____
3 + 6 = ____	14 + 3 = ____
3 + 9 = ____	12 - 9 = ____
2 + 8 = ____	14 - 3 = ____

Answer the following questions by circling Yes or No for the correct choice.

Yes or No Do you wear glasses when you read?

Yes or No Are you right handed?

Yes or No Are you left handed?

When you are finished with this page, submit it to your nurse. She will direct you further.

(3).

INTRODUCTION

INSULIN: ALL YOU NEED TO KNOW BUT WERE AFRAID TO ASK concerns itself with the following problem: How can a person gain the skills necessary to control his diabetes? It is my goal that you leave this program knowing:

1. How to measure insulin correctly and how to inject it safely.

2. How to prevent and treat low blood sugar (hypoglycemia).

3. How to know if you are ill, and what you should do.

DIRECTIONS

1. This program booklet is yours to keep and study. All the necessary information for you to help yourself is included.

2. As you read this, you will find questions to answer; this will help you learn.

3. The answers to the questions are found on pages 10, 20 and 25 of this booklet.

4. In the second section of this program you will have some things to do with the nurse and then alone.

5. This program will take about an hour to an hour and a half to complete.

6. You will take a post-assessment test at the end of the program. This will show if you need any more help. The test answers are found on page 29 and 30.

OVERALL GOAL

You will be able to recall the name and source of your insulin, the number of units you will inject daily; you will know what it does for you. You will learn how to correctly measure and inject the insulin safely, and, you will learn how to stay out of trouble when taking insulin.

OBJECTIVES

1. Given the help you need, you will tell why you must take insulin rather than pills.

2. With 100% accuracy, and a sample syringe, you will name the parts of the syringe.

3. With complete accuracy and no outside help, you will name your insulin, its source, and how long it lasts.

4. You will measure and inject your insulin with complete accuracy and good technique in the presence of the nurse.

5. In the presence of the nurse, and with no assistance, you will properly dispose of your syringe.

6. You will pick from a list at least three symptoms of low blood sugar (hypoglycemia), and, name three possible ways to treat it.

7. By written test, and with 100% accuracy, you will tell how to prevent hypoglycemia from occurring. You will not be allowed outside help.

8. You will write at least two causes of high blood sugar (hyperglycemia), and what you should do if it happens. You will do this correctly and you may use the program to assist you.

INSULIN

You have been told by your physician that you need to take insulin injections to keep your blood sugar better controlled. Insulin is a hormone that is made by your pancreas. Some people who still make some of their own insulin have been tried on oral medication "pills" to control their diabetes. Others have tried these "pills" with no success. You are one of the people who must take insulin in order to control your diabetes, feel well, have good energy and delay or prevent the problems associated with diabetes.

At the present time, most new diabetics, or those who can no longer use the "pills", are being placed on HUMAN INSULIN. This is a product that is made in a laboratory by a process called "genetic engineering". It is not made from human beings. It is made from a bacteria and resembles what a human pancreas makes. The other way insulin is made is from the pancreas of either cows or pigs.

There are several different kinds of HUMAN INSULIN being made. 1. REGULAR This is a fast acting insulin and is used to reduce high blood sugar quickly. It works in 30 minutes and lasts only 2 to 5 hours. It must be taken more then once a day.

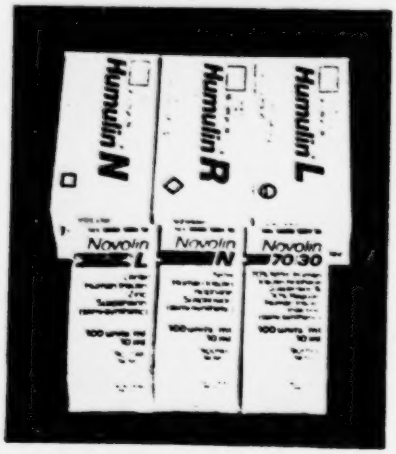
2. NPH This is called an intermediate insulin. It begins to work in 1 to 1 1/2 hours after it is injected, works its hardest in 8 to 12 hours, and lasts 24 hours. It is taken 30 minutes before breakfast.

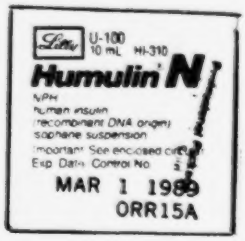
3. LENTE This is an intermediate insulin also. It begins to work 1 to 1/2 hours after it is injected, works its hardest in 7 to 15 hours, and it also lasts 24 hours. It is also taken 30 minutes before breakfast.

The type of insulin your doctor has prescribed for you is _____. You will take _____ units, and you will take it at _____.

(6).

Following are some pictures of insulin boxes. I have already indicated the one you will be using. Carry the end of the box in your wallet or purse so that anyone can tell what kind you are taking if any emergency should occur.





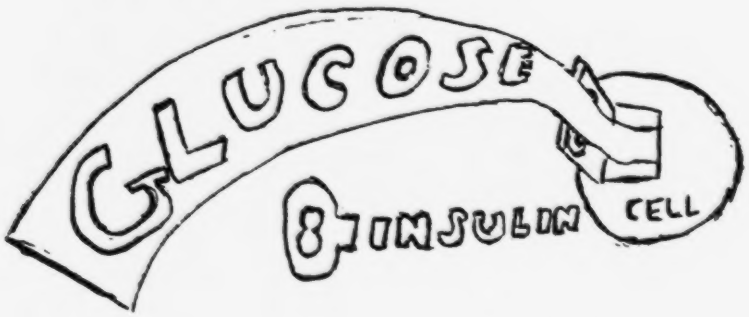
At the present time, two companies in the U.S.A. are producing insulin. The two are Squibb/Novo and Eli Lilly. If you remember that you are on HUMAN INSULIN and that the type is either Regular, Lente or NPH, then the producer does not matter. Become a label reader! Make sure you are getting HUMAN. These companies also make animal insulins: pork, beef, and a combination of the pork and beef. If you begin to take the HUMAN insulin, you should not switch to the animal types. You should always take what your doctor prescribes!

It is important to remember that exercise and other medications may affect the way your body uses insulin. It is important that your doctor know what you are taking.

You should also follow the meal plan the dietitian has made for you. The number of units (your insulin dose), and your food plan should not be changed unless you consult your doctor and/or dietitian.

HOW DOES INSULIN WORK?

Our bodies are made up of tiny little building blocks called "cells". Each "cell" needs its share of glucose (sugar) in order to work. Insulin is needed to get the sugar into the "cells". Think of insulin as the "key" that unlocks the door of the "cell".



People with diabetes do not make enough insulin or the insulin they do make does not work well. The vital "key" is missing or it does not fit correctly. Without it the "cells" cannot open their doors, and the sugar remains in the blood stream and rises higher and higher.

WHY DOES INSULIN HAVE TO BE INJECTED?

Insulin cannot be taken as a pill or capsule because the acid in the stomach destroys it!

KNOWLEDGE SHEET ONE

You have now completed the first section of the insulin program. Now you should complete this short practice session to see how much information you have retained, and also where you need a little extra help. You have ten minutes to attempt the answers.

The first two questions are multiple choice. You should select the correct answer and circle the letter that corresponds with your answer.

1. Insulin is a drug that is injected. Insulin is made from:
   a. animal sources
   b. in a laboratory and called HUMAN
   c. both a and b are correct
   d. both a and b are incorrect.

2. The most commonly used types of insulin are:
   a. NPH
   b. LENTE
   c. REGULAR
   d. all of the above.

Questions 3,4,5 and 6 are True or False. Place a check mark (✓) by the correct answer.

3. Insulin can only be taken by injection.
   ____True____False.
4. Insulin should be taken at the same time each day.
   ____True____False.
5. Insulin should be taken before breakfast.
   ____True____False.
6. Insulin is the key that helps glucose (sugar) get into the cell.
   ____True____False.

The next four statements require you to fill in the blanks.

7. The name of my insulin is _____.
8. My insulin is made in a laboratory and is called _____.
9. My insulin lasts _____ hours.
10. I take my injection _____time(s) a day.

Check your answers on the next page. If you had any problems, reread the first section (pp. 6-8) of the program and re-test yourself. Ask your nurse for assistance if necessary. If you answered the questions correctly, continue reading on page 11.

ANSWERS TO KNOWLEDGE SHEET ONE

1. Insulin is a drug that is injected. Insulin is made from: (c) both animal sources and in the laboratory.

2. The most common types of insulin are:
   (a) NPH
   LENTE
   REGULAR

3. True. Insulin can only be taken by injection.

4. True. Insulin should be taken at the same time each day.

5. True. Insulin should be taken before breakfast.

6. True. Insulin is the key that helps glucose (sugar) get into the cells.

7. The name of my insulin is _____.

8. My insulin is made in a laboratory and is called HUMAN.

9. My insulin lasts 24 hours.

10. I take my injection once a day.

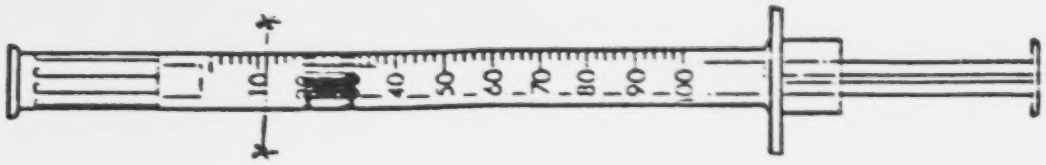
Turn the page and continue to read. →

HOW DO YOU STORE YOUR INSULIN?

Because of the process used in making your insulin, keep the bottle you are using at room temperature. If you should buy more than one bottle at a time, keep the unopened one in the refrigerator. Do not at any time let your insulin freeze or become exposed to extreme heat-such as in the glove compartment of your car, or in the direct sunlight. If any of these extremes happen, dispose of the affected bottle.

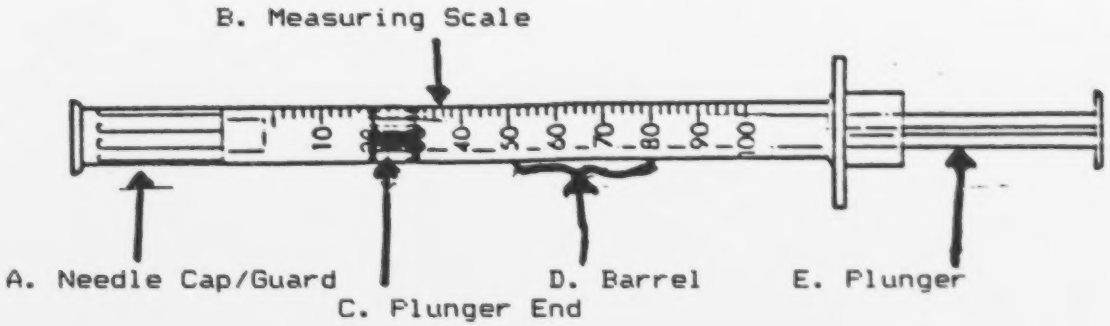
HOW DO YOU MEASURE YOUR INSULIN DOSE?

You will notice that your bottle says UNITS: this refers to the measure of dosage. Each bottle contains 1,000 units and for the average person will last from 50 to 60 days. All of the insulin prescribed today is sold as U-100 which means there are 100 UNITS per cc. This means that you must use a syringe that also measures UNITS, and is also equal to 100 UNITS per cc. The syringe will be labeled as U-100 or as Lo-Dose which is also for U-100 but measures only to 50 UNITS. If you are using the standard U-100 syringe, each small line counts for two units of dosage. At every 10 units, there is a long line and it will have a 10, 20, 30 etc. marked next to that line. If you look at the diagram below you will see that I have indicated where 12 units would be measured.



THE INSULIN SYRINGE

Insulin is always given with an insulin syringe. Pictured below is a syringe with the parts labeled. Please refer to the picture and learn the parts of the syringe. When you are sure you know the parts, see your nurse and she will assist you with the actual procedure for measuring your insulin dose.

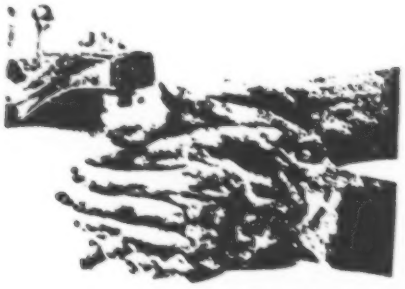


MEASURING YOUR INSULIN DOSE

Now that you have learned what UNITS are, and are familiar with the parts of the syringe, it is time to learn the actual procedure for measuring the insulin. Your nurse will show you the actual procedure step by step and then she will ask you to repeat the procedure back to her. You will have a step by step guide to follow.

Proceed to the next page. →

____1. Wash your hands.



____ 2. Pick up your insulin bottle, tip it up and down gently to mix the contents, and then roll it between your hands for a minute. After insulin sits for a while, the medication separates and leaves a white residue on the bottom of the bottle. This must be mixed back into solution before the insulin is injected.

____ 3. Check the date on the bottle to make sure the insulin is not old. After the date stamped on the bottle, we cannot be sure the insulin is potent. Also make sure the bottle has a large letter_____stamped on it. This is the name of your insulin.

____ 4. Use a cotton ball or alcohol swab to clean the rubber stopper on the bottle. Clean in a circular motion using firm pressure.

____ 5. Remove a syringe from your package, remove the white plunger guard and the orange needle guard. Pull the plunger back to the number of units of your insulin dose, push the needle in to the stopper of the bottle, and push in the air.

____ 6. Pick up the bottle with the needle of the syringe still stuck in the bottle. With the second and third finger of your ____ hand around the neck of the inverted bottle, use your fourth and fifth fingers to hold the syringe. Make sure you can see the measuring scale on the syringe.

____ 7. Pull the end of the plunger back with your ____ hand until you get the number of units of your dose in the syringe. Make sure you measure at the black plunger where it is the narrowest.

____ 8. Look at the syringe and see if there are any bubbles of air. These bubbles will not hurt you if you inject them, but they cheat you out of your correct insulin dose.

____ 9. If there are any bubbles, push the insulin back in to the bottle, and pull your dose out again. If you still have bubbles, the nurse will show you how to get them out.

____10. Pull the needle out of the bottle, and set your syringe down using the needle cap as a resting place, make sure you do not touch the needle to anything.

CONGRATULATIONS! You have just successfully measured your insulin dose. The next step is to choose the area where you will take your injection. The nurse will help you with this.

(15).

THE INJECTION

Now you will learn where you should take your injection and how to do it correctly. This is the part of the program that most people are afraid to do. Do not be afraid. The nurse will be here to help you all the time. She will not let you do anything wrong!

Insulin injections are to be taken in the fatty tissues of the body. We are all blessed with an abundance of this fat, so there is little danger you would take the injection in muscle or into a blood vessel. The most common areas in which you should inject the insulin are:

- the abdomen
- the thighs
- the backs of the upper arms
- the buttocks.

The abdomen and the thighs seem to be the easiest areas for most people to use.

Insulin is meant to last for many hours so injecting into fat makes it long lasting. If you inject into muscle, because of muscle use, the insulin is used quicker.

It is important that you switch areas every time you take an injection. You should ROTATE your sites. The reason we encourage this is to provide the best use of the insulin and to prevent lumps or depressed areas where you take the shot.

Today I want you to use your abdomen for your first shot. The reason I have you use this area is so that you will know what the injection feels like and will not be afraid to inject there.

To prepare the area of the injection you should cleanse the skin with alcohol or have showered recently.

Continue to the next page.

With your ___hand, pinch a handful of tissue and pull it so that you are doing a "pinch an inch" as in the Kellogg's Special K cereal ad. With your ___ hand, hold the syringe like a dart, and thrust the needle into the pinched area. The needle will not go too deep because it is very short and your skin will stop it. With your ___ index finger, push the plunger all the way down. Watch what you are doing! When the plunger stops, the insulin is all injected. Pull the needle out, and release the skin pinch. You have now finished your shot.

It is not necessary to wipe the site after you have completed the injection. On occasion you might see a little leakage of clear liquid, or possibly even a little blood. Do not become alarmed; this will sometimes happen. There are tiny capillaries in the skin, and sometimes you can nick them with the needle.

You did a wonderful job and are to be praised!

The last task you will learn is how to dispose of your syringe in a safe way.

Turn to the next page.

SYRINGE DISPOSAL

Now that you have finished your injection, you need to get rid of the used syringe. To break the needle off the syringe is an important task. This prevents someone else from using the syringe and protects children from a dangerous piece of equipment.

Take the syringe and push the needle into the needle guard backwards. Bend the syringe back and forth until the needle breaks off. Also break your plunger in half.

TRAVELING HINTS

When ever you go on a trip, always remember that your insulin and your syringes are extremely important to you. Do not pack them away in luggage. If you should become separated from your luggage, you will not have any insulin! Carry your insulin and syringes in your purse or any carry-on luggage that you will have with you. You do not heed to pack it in ice or carry it in a cooler unless you are traveling in a warm car. In that instance, wrap the insulin in a cold wash cloth and put it in a wide-mouthed insulated container. Remember, extremes in heat or cold can cause your insulin to lose its potency!

KNOWLEDGE SHEET TWO

Answer the following questions. You have ten minutes to finish the questions. Questions 1 through 4 are to be completed by filling in the blank with the correct answer.

1. The insulin bottle you are currently using should be kept at _____ temperature.

2. Unopened insulin bottles should be kept in the _____.

3. When traveling you should keep your insulin and syringes _____.

4. Insulin dosage is measured in a syringe as _____.

Question 5 is a diagram of a syringe. Please label all the of the parts indicated by letters.

a._____ c._____ e._____
b._____ d._____

Questions 6,7 and 8 are to be answered in a few words.

6. Why is it important to rotate your injection site?

7. Explain why you pinch the injection site?

8. Why do you break the needle and plunger of the syringe?

Check the next page for the correct answers.
If you missed any of the questions, re-read the text (pp. 10-18) and re-answer the questions.
If you miss again, check with your nurse.

(19).

ANSWERS TO KNOWLEDGE SHEET TWO

1. The insulin bottle you are currently using should be kept at room temperature.

2. Unopened insulin bottles should be stored in the refrigerator.

3. When traveling you should keep your insulin and syringes with you, either in your purse or in your carry-on luggage.

4. Insulin dosage is measured in a syringe as units.

5. The parts of the syringe are:

   a. needle cap/guard
   b. measuring scale
   c. plunger end
   d. barrel
   e. plunger

6. It is important to rotate your sites daily to prevent lumps or depressions in the tissue, or to assist in better use of the insulin.

7. You should pinch the injection site in order to pull the fatty tissue away from the muscle. The injection is to be taken in the fatty tissue.

8. You should always break the needle off the syringe to prevent use by someone else or to prevent injury to children or others who handle your trash.

Continue reading on the next page.

DIABETIC EMERGENCIES

HYPOGLYCEMIA OR INSULIN REACTION

What happens when you take your insulin and don't eat? What happens if you do not eat all of your food? What happens if you exercise and do not adjust your food? A common but avoidable problem that occurs when any of the above happens is low blood sugar (hypoglycemia). This is a problem that requires a quick solution!

What are the symptoms you may show when low blood sugar happens? You may experience one or more of the following:

1. nervousness
2. anxiousness
3. fast heart beat
4. shaking
5. sweating
6. tingling of the tongue or lips
7. dizziness
8. headache
9. extreme hunger

Remember that these symptoms will happen very suddenly!

What do you do if any of these symptoms occur? From the following list, take only one of the suggestions:

1. 1/2 cup of orange juice or
2. 1/2 cup of regular pop or
3. 1/4 cup of grape juice or
4. 2 teaspoons of honey or
5. 2 packets of sugar or 2 Glucose Tablets or
6. 1 tablespoon of jelly or
7. 5 to 7 Lifesavers.

Remember: if your next meal is more than 30-45 minutes away, eat a small amount of a starch and protein to prevent recurrence of the low blood sugar. Always carry a sugar source with you. Always have some form of identification that states you are a diabetic for emergency situations. The nurse will give you a card to carry in your wallet and she can also give you an application to the Medic Alert Foundation so you can order a bracelet or necklace to wear.

How do you prevent low blood sugar?

1. Always rotate your injection sites.
2. Eat your meals on time and your snacks as the dietitian has planned them for you.
3. Eat a snack before you exercise.
4. Take the amount of insulin the doctor has prescribed for you.
5. Do not drink alcohol.

HYPERGLYCEMIA

What happens when you do not take your insulin or if you should become ill? The term for this problem is hyperglycemia (high blood sugar).

The symptoms you should be aware of are as follows:

1. weakness
2. blurred vision
3. increased thirst
4. increased urination (passing water)
5. nausea (upset stomach)
6. vomiting
7. rapid, deep breathing
8. sweet, fruity smell to the breath

These symptoms develop slowly over a longer period of time.

How do you prevent this emergency from happening?

1. Know that illness or infections can be a cause. Call the doctor!

2. Do not skip your insulin injection, even if you feel you cannot eat!

3. If you cannot eat solid foods, drink plenty of liquids (broth, water, tea), or eat soft foods.

4. Always keep your physician informed about what is going on. Call him/her or an associate, s(he) will probably have you take more insulin. Remember that when you are sick, your blood sugar rises!

YOUR PHYSICIAN'S PHONE NUMBER IS __(___)_____
(area code)(phone number)

THE HOSPITAL PHONE NUMBER IS _____
(area code)(phone number)

Ask for the doctor on call for diabetic patients.

Turn to the next page and complete the last Knowledge Sheet. GOOD LUCK!

KNOWLEDGE SHEET THREE

Please answer the following questions. If you complete them all correctly, you may take the post-assessment test. You have ten minutes.

Questions 1 through 3 are answered by circling the letter that corresponds with the correct answer.

1. Hypoglycemia is:
   a. low blood sugar
   b. an emergency
   c. an insulin reaction
   d. happens very suddenly
   e. easily treated with juice
   f. all are correct.

2. The best way(s) to prevent low blood sugar is/are:
   a. eat on time
   b. take only the prescribed dose of insulin
   c. do not drink alcohol
   d. adjust your diet when you exercise
   e. all are correct.

3. Hypoglycemia is easily treated by:
   a. 1/2 cup of orange juice
   b. Lifesavers
   c. Glucose Tablets
   d. Honey
   e. all are correct

For question 4, circle at least four correct answers from the list.

4. The symptoms of hypoglycemia are:
   a. weakness
   b. fatigue
   c. confusion
   d. headache
   e. hunger
   f. sweating
   g. dizziness
   h. fast, deep breathing

For question 5, fill in the blanks.

5. List two factors that might cause hyperglycemia, and state what you would do if you suspect this to be happening to you.
   Two causes are: a._____
   b._____
   I would _____

Turn to the next page and check your answers.
If you missed more than one questions, re-read the section (pp.21-23) and re-write the Knowledge sheet.
If you are having problems, check with your nurse.
(24).

ANSWERS TO KNOWLEDGE SHEET THREE

1. Hypoglycemia is : (f.) all are correct.
   - low blood sugar
   - an insulin reaction
   - easily treated with fruit juice
   - happens very quickly

2. The best ways to prevent low blood sugar are:
   (e) all are correct
   - eat on time
   - take only the prescribed insulin
   - do not drink alcohol
   - adjust your diet when you exercise

3. Hypoglycemia is easily treated: (e.) all are correct
   - 1/2 cup of orange juice
   - Lifesavers
   - Glucose Tablets
   - Honey

4. The symptoms of hypoglycemia are:
   (a) weakness
   (d) headache
   (e) hunger
   (f) sweating
   (g) dizziness

5. Two causes of hyperglycemia are:
   (a) infection
   (b) not enough insulin; omitting your insulin injections.

   If I thought I might be developing this problem I would: call my physician or the physician on call. Take my prescribed insulin dose and try to eat even though I may be sick to my stomach.

POST-ASSESSMENT

You will have 15 minutes to complete this exercise. There are several different kinds of questions. You may not use any assistance to answer the questions. When you have completed the exercise, your nurse will go over the answers and discuss any problems. GOOD LUCK!

1. Insulin is extremely important in the treatment of some diabetics. ____True____False.

2. Insulin can only be taken by injection. ____True____False.

3. Insulin dosage is measured in units. ____True____False.

4. The purest form of insulin made today is _____.

5. Intermediate strength insulin refers to two types. These are _____ and _____.

6. At what time of the day should you take your insulin? _____.

7. Human insulin is made in the lab by a process called _____ engineering.

8. Insulin is injected into the _____tissue so that it is absorbed slowly.

9. Your open bottle of insulin should be kept at _____ temperature.

10. Always store your extra bottles of insulin in the _____.

11. When you travel, do not pack your insulin in your _____.

12. Excess heat and cold do affect the potency of your insulin. ____True____False.

13. Your bottle of insulin has an expiration date stamped on it. You should not use it past that date because it may lose its potency. ____True____False.

Continue on to the next page.

14. Which of the following are necessary in order to keep your blood sugar under control?
    a. insulin
    b. diet
    c. exercise
    d. all are correct.

15. In which areas of the body can you take your insulin injections?
    a. abdomen
    b. buttocks
    c. upper arms
    d. thighs
    e. all of the above.

16. You should pinch the skin in order to pull the _____ tissue away from the underlying muscle.

17. You should rotate your insulin sites on a _____ basis.

18. Insulin reactions (hypoglycemia) have which of the following symptoms? Choose at least two.
    a. fatigue
    b. weakness
    c. confusion
    d. headache
    e. extreme thirst
    f. sweating
    g. hunger.

19. The emergency treatment of hypoglycemia consists of which of the following? Choose at least three.
    a. 1/2 cup of orange juice
    b. Glucose Tablets
    c. Life Savers
    d. milk
    e. bread.

20. From the following list, choose at least three possible causes of hypoglycemia.
    a. extra exercise
    b. delayed meals
    c. missed meals
    d. alcohol
    e. too much insulin.

21. Hyperglycemia (high blood sugar) is a result of not taking your insulin. ____True____False.

Continue to the next page.

(27).

22. Hyperglycemia can occur if you have an infection.
____True____False.

23. If you have a lot of insulin reactions you should call
_____.

24. From the following list, choose at least two symptoms of hyperglycemia.
    a. drowsiness
    b. dimmed vision
    c. dry, flushed skin
    d. sweating
    e. thirst
    f. nausea
    g. vomiting
    h. fruity breath.

25. A diabetic should always carry some kind of emergency identification.
____True____False.

Turn to the following page and see how well you did with these questions.

ANSWERS TO THE POST-ASSESSMENT

1. True. Insulin is extremely important in the treatment of some forms of diabetes.

2. True. Insulin can only be taken by injection.

3. True. Insulin dosage is measured as units.

4. The purest form of insulin made today is HUMAN.

5. The two types of intermediate insulin are LENTE and NPH.

6. Your insulin should be taken at the same time each day, before breakfast.

7. Human insulin is made in the lab by genetic engineering.

8. Insulin is injected into the fatty tissue so that it is absorbed slowly.

9. Your open bottle of insulin should be kept at room temperature.

10. Always store your extra bottles of insulin the refrigerator.

11. When you travel, do not pack your insulin in your luggage.

12. True. Excess heat and cold do affect your insulin.

13. True. Your insulin should not be used past the date stamped on it because it may lost its potency.

14. (d) All are correct. You can keep your blood sugar under control if you watch your diet, exercise and take your insulin.

15. (e) All are correct. Insulin injections can be taken in the abdomen, buttocks, upper arms and thighs.

16. You pinch the skin in order to pull the fatty tissue away from the underlying muscle.

17. You should rotate your injection sites on a daily basis.

18. An insulin reaction includes the following symptoms-
(b) weakness
(c) headache
(f) sweating
(g) hunger.

Go on to the next page.

19. The emergency treatment of hypoglycemia includes the following-
    (a.) 1/2 cup of orange juice
    (b.) Glucose Tablets
    (c.) Life Savers.

20. From the list of the possible causes of hypoglycemia, you were asked to choose three possible answers. <u>All of the choices listed were correct</u>.
    (a.) extra exercise
    (b.) delayed meals
    (c.) missed meals
    (d.) alcohol
    (e.) too much insulin.

21. <u>True.</u> Hyperglycemia is a result of not taking your insulin.

22. <u>True.</u> Hyperglycemia can occur if you have an infection.

23. If you have a lot of insulin reactions, you should <u>phone your physician</u>.

24. The symptoms of hyperglycemia include all that were listed except d. sweating.
    (a.) drowsiness
    (b.) dimmed vision
    (c.) dry, flushed skin
    (e.) thirst
    (f.) nausea
    (g.) vomiting
    (h.) fruity breath.

25. <u>True.</u> A diabetic should always carry some kind of emergency identification.

Go on to the next page. →

APPENDIX I

INSTRUCTOR'S INFORMATION

INSTRUCTOR'S INFORMATION

This module is designed for adult patients who have at least an eighth grade education. These are the typical Type II diabetics who need to start on insulin injections.

This module is self-instructional but does require a nurse (you) to be of assistance for demonstration and clarification.

The first section of the module focuses on:

1. Why insulin is the choice of treatment?
2. The types and strengths of the different insulins.
3. The duration of action of the most commonly used preparations.
4. When the insulin should be taken.
5. The dosage prescribed by the physician.
6. How the insulin works.
7. Why insulin must be injected?

The second section of the module is the demonstration-practice component that focuses on measuring and injecting the insulin correctly and safely, and using good technique. This is a particularly important section and you are the "key" to providing reassurance and assisting the patient in use of the step-by-step procedure.

The third section discusses the issues of hypo and hyperglycemia which are referred to as Diabetic Emergencies.

DIRECTIONS

A. Remember, the module is only to be used when you are in attendance! Only two parts are self-instructional. You should be available if there are any problems that your patient might have with the Knowledge Sheets or with any comprehension difficulties.

B. You should have a red ball point pen and at least two pencils. The patient is to be given his copy of the module with any blanks filled in with red ink. You will have the prescription information before you see the patient so that this information can be transcribed ahead of time. The only information you will need to fill in at the time of instruction can be gathered from the information sheet the patient completes.

C. Have the following equipment with you when you begin the instruction: Insulin syringes--both the standard U-100 and the Lo-Dose U-100.
Alcohol swabs
Sample bottles and boxes of all types of Human Insulin.

D. The module should take approximately one hour to complete. Remember that the patient must know what s(he) is doing before leaving you!

(35).

The blanks are found on:

Page 6-- You will write in the name of the patient's insulin, this should be done in red ink. The number of units of the dose prescribed should be filled in with pencil since this is likely to change. The time of the injection should be in red ink.

Page 7-- Circle the picture that represents the box of the insulin the patient will be using. Use red ink here.

Page 10- In number 7, write in red ink the name of the insulin prescribed.

Pages 13 through 15-- You will first have the patient read the measuring task instructions while you do the task, then, reverse the roles. As he or she successfully completes each step, check him or her off using a red ink pen.

On Page 13 at number 3, write in red ink the letter that represents your patient's insulin type.

On Page 14 at number 5, in pencil write in the units prescribed in large numbers. Use the Left margin. At number 6, fill in the blank in red ink with R or L indicating the non-predominant hand.

On page 15 at number 7, in red ink fill in the space with an R or L indicating the predominant hand. Again, in large numbers and with pencil, reinforce the units of the patient's insulin dose. Again, use the Left margin. At number 9, in pencil and using large numbers, reinforce the units of the insulin dose. Use the Left margin.

Page 17-- In the first paragraph, fill in the first blank with the letter R or L to represent the non-predominant hand. Use red ink. Fill in the second blank using the red pen to indicate the predominant hand. The third blank also represents the predominant hand. Provide plenty of encouragement during these two psychomotor practices! This is the most frightening task for a patient to learn.

Page 23-- Fill in the physician's office number, and the hospital phone number using red ink.

(34).

CONGRATULATIONS! You are now quite capable of safely beginning to manage your diabetes. I suggest that you also learn about diet, exercise and monitoring your sugar at home. The nurse will offer some suggestions to you.

(31).

ACKNOWLEDGMENT

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DRUG COMPANY LITERATURE

Becton-Dickinson And Company
Becton-Dickinson Consumer Products
Rochelle Park, New Jersey

Eli Lilly and Company
Indianapolis, Indiana

Pfizer Laboratories
Division of Pfizer Pharmaceuticals
Washington, D.C.

The Squibb Novo Corporation
Princeton, New Jersey

The Upjohn Company
Kalamazoo, Michigan